

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/768,726	01/24/2001	Bassel Beidas	PD-200316	1223

7590 08/27/2004

Hughes Electronics Corporation  
Patent Docket Administration  
P.O. Box 956  
Bldg. 1, Mail Stop A109  
El Segundo, CA 90245-0956

EXAMINER

MURPHY, RHONDA L

ART UNIT

PAPER NUMBER

2667

DATE MAILED: 08/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/768,726	BEIDAS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Rhonda L Murphy	2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) 8-13, 18-21, 34-39 and 44-47 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-25 and 48-51 is/are allowed.
- 6) ☒ Claim(s) 1-3, 14, 15, 26-29, 40 and 41 is/are rejected.
- 7) ☒ Claim(s) 4-7, 16, 17, 30-33, 42 and 43 is/are objected to.
- 8) ☒ Claim(s) 8-13, 18-21, 34-39 and 44-47 are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____.   | 6) <input type="checkbox"/> Other: ____.                                    |

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-7, 14-17, 22-33, 40-43 and 48-51, drawn to providing a synchronization signal, classified in class 370, subclass 509.
  - II. Claims 8-9 and 34-35, drawn to determining the power level of a signal, classified in class 370, subclass 311.
  - III. Claims 10-13 and 36-39, drawn to testing, classified in class 370, subclass 252.
  - IV. Claims 18-21 and 44-47, drawn to phase determination, classified in class 370, subclass 516.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I, II, III and IV are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions I (claims 1-7,14-17,22-33,40-43 and 48-51) is directed to a system and method of providing a synchronization signal to a terminal, while invention II (claims 8-9 and 34-35) to a system and method of determining the power level of a signal, while invention III (claims 10-13 and 36-39) to testing a signal at various frequencies, and invention IV (claims 18-21 and 44-47) to determining the phase of a signal. In view of above, they have different modes of operation, different functions, and /or different effects.

Art Unit: 2667

3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, nor Group III, nor Group IV, restriction for examination purposes as indicated is proper.
4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
5. During a telephone conversation with John Whelan on 8/11/04 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-7, 14-17, 22-33, 40-43 and 48-51. Affirmation of this election must be made by applicant in replying to this Office action. Claims 8-13, 18-21, 34-39 and 44-47 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Drawings***

7. The drawings are objected to because the AGC Block Diagram of Figure 11 is shown as item "112". According to the specification, Figure 11 should be designated as item "116". Corrected drawing sheets are required in reply to the Office action to avoid

abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

8. The disclosure is objected to because of the following informalities and shall be changed as follows: AGC block "112" changed to "116" in paragraph 57 of page 14; mode switch "42" changed to "142" of the same paragraph; 128 FFT block "130" changed to "230" in the last two sentences of paragraph 63 and second sentence of paragraph 64 on pages 16-17; "VCR" to "VCO" in paragraph 68; and beacon demodulator "110" in paragraph 70 should be denoted as "112".

Appropriate correction is required.

***Claim Objections***

9. Claim 22 is objected to because of the following informalities: Letter '(e)' should be replaced with '(i)' after the letter '(h)'. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-3,26,27 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Nishimura (US 6,493,360).

**Regarding claims 1 and 26**, Dent teaches a system for providing a synchronization signal to a terminal which is adapted for use in a communications network, the system comprising: a transmitter for transmitting to a terminal (**reception circuit**, Fig. 2) a signal including a plurality of frames (col. 5, lines 33-35, Fig. 1), each of said frames including at least one time slot (see Fig. 1); wherein said transmitter includes a respective portion of said synchronization signal in at least one said time slot of a plurality of said frames (col. 6, lines 52-53), said synchronization signal including data which is adapted for use by said terminal to control transmission timing of said terminal (col. 5, lines 33-52).

**Regarding claims 2 and 27**, Nishimura teaches the method wherein said including step includes in each of said frames said respective portion of said synchronization signal in at least one time slot (col. 5, lines 33-52, Fig. 1).

**Regarding claims 3 and 29**, Nishimura teaches the method wherein said including step includes said portion of said synchronization signal in each said frame, such that said synchronization signal comprises a unique word signal that is substantially the same in each frame (col. 5, lines 33-35; col. 6, lines 52-53).

12. Claims 14,15,40 and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Dent (US 6,023,477).

**Regarding claims 14 and 40**, Dent teaches a transmitter adapted to generate a synchronization signal (col. 4, lines 41-45) as a plurality of unique phase signals (col. 16, lines 26-29) and to transmit said synchronization signal to said terminal (col. 5, lines 62-66), said synchronization signal comprising a plurality of frames (Fig. 1, col. 6, lines 5-7), a portion of each frame comprising a unique one of said plurality of unique phase signals (col. 16, lines 26-33).

**Regarding claims 15 and 41**, Dent teaches a system wherein the synchronization signal comprises a plurality of superframes, each superframe comprising a plurality of said frames (col. 6, lines 30-33, 40-42), such that the order of unique phase signals in each frame repeats in each superframe (col. 11, lines 34-39).



***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura as applied to claim 26 above, and further in view of Dent (US 6,023,477).

**Regarding claim 28**, Nishimura teaches the method set forth in the rejection of claim 26 as described above.

Nishimura fails to teach the following limitation taught by Dent: the system wherein said synchronization signal includes frequency data which is further adapted for use by said terminal to control transmission frequency of said terminal (col. 4, lines 28-30); and said system controls said transmission frequency based on said frequency data (col. 4, lines 30-32).

In view of this, having the system of Nishimura and then given the teaching of Dent, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Nishimura, by including frequency data to control transmission frequency, so that the receiver is able to precisely recover the original signal transmitted by the transmitter, thereby providing the overall system with higher efficiency in data transmission.

***Allowable Subject Matter***

15. Claims 22-25 and 48-51 are allowed. Prior art does not teach the following limitations:

**Regarding claim 22**, a method of acquiring a communication signal, the communication signal comprising a plurality of frames, each frame comprising a plurality of time slots, at least one time slot in each frame having synchronization data with a unique word signal contained therein, the method comprising:

- (a) setting the gain of an automatic gain control circuit based on the maximum power measured in continuous time intervals being less than the duration of one time slot of each frame;
- (e) repeating steps (a)-(d) while the correlation value is below a frequency acquisition threshold, and when said correlation value is at least equal to said frequency acquisition threshold, performing the steps of:
  - (f) determining an arrival time of the unique word signal in a first frame;
  - (g) estimating an estimated arrival time of the unique word signal in a second frame based on the arrival time of the unique word signal in said first frame;
  - (h) determining the actual arrival time of the unique word signal in said second frame;
  - (i) calculating a difference between the estimated arrival time and the actual arrival time;
  - (j) adjusting a voltage controlled oscillator (VCO) frequency based on said difference;
  - (k) repeating steps (f)-(j) while said difference is not below a timing acquisition threshold to determine acquisition of said communication signal.

**Regarding claim 48**, a system for acquiring a communication signal; a voltage controlled oscillator (VCO) frequency offset reducer adapted to:

- (c) determine the actual arrival time of the unique word signal in said second frame;
- (d) calculate a difference between the estimated arrival time and the actual arrival time;
- (e) adjust a VCO frequency based on said difference, and
- (f) repeat functions (a)-(e) on subsequent frames if said difference is not below a timing acquisition threshold value; and a mode selection circuit for causing the system to enter a tracking mode if said difference is below said timing acquisition threshold value.

16. Claims 4-7,16-17,30-33,42 and 43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Prior art fails to teach the following limitations:

**Regarding claims 4,7,30 and 33**, arranging respective groups of said frame into respective superframe, and for each said superframe, said including step includes a portion of said synchronization signal in each said frame, such that each said portion comprises a respective phase signal that is unique for each respective frame within a particular superframe; and said phase signals in said frames of said superframes in the same order for each said superframe.

**Regarding claims 16 and 42**, the system of claim 15 and 41 wherein the number of frames per superframe is equal to the number of unique phase signals.

Art Unit: 2667

**Regarding claims 17 and 43**, the system of claims 15 and 41, wherein the beginning of each superframe coincides with the beginning of one of the frames.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rhonda L Murphy whose telephone number is (571) 272-3185. The examiner can normally be reached on Monday - Friday 8:00 - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (703) 305-4798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

rlm

  
RICKY NGO  
PRIMARY EXAMINER